

Decision Document

**Solid Waste Management Unit B-17b
Building 101-20 East Catchment Pit
Hawthorne Army Depot
Hawthorne, Nevada**



March 2000



Hawthorne Army
Depot



Decision Document SWMU B-17b

March 2000

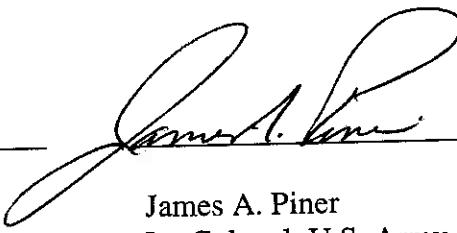
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ENVIRONMENTAL PROTECTION AGENCY

The selected remedy is protective of human health and the environment. It has been shown that a complete pathway to human health and the environment does not exist, and there is no potential for an exposure pathway to be completed in the future.

U. S. Army

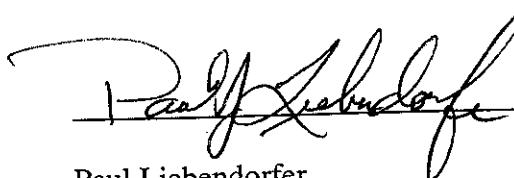
26 JUN 2000



James A. Piner
Lt. Colonel, U.S. Army Commanding

State of Nevada

04 August 2000



Paul Liebendorfer
Chief, Bureau of Federal Facilities

Decision Document

**Solid Waste Management Unit B-17b
Building 101-20 East Catchment Pit
Hawthorne Army Depot
Hawthorne, Nevada**



March 2000



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Depot



**Decision Document
SWMU B-17b
Building 101-20 East Catchment Pit
HAWTHORNE ARMY DEPOT
HAWTHORNE, NEVADA**

1.0 Introduction:

This decision document describes the rationale for the proposed closure of SWMU B-17b, building 101-20 east catchment pit, at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. This document was prepared by the U.S. Army Corps of Engineers, Sacramento District, with the help of HWAD for the Nevada Department of Environmental Protection (NDEP).

Tetra Tech, Inc. (Tt), was tasked by the US Army Corps of Engineers, Sacramento District (USACE), to perform remedial investigations and ground water monitoring at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. These tasks were conducted from 1993 through 1997, primarily at solid waste management units (SWMUs) designated by the Army and the Nevada Division of Environmental Protection (NDEP). The NDEP is the lead regulatory agency for environmental issues at HWAD. The purpose of the sampling was to determine the extent and degree of environmental impacts, if any, associated with activities performed at each SWMU. The primary goal of the investigation was to assess the environmental impacts and to report the findings, present conclusions, and recommend any remediation, if necessary.

With guidance from the NDEP, basewide proposed closure goals (PCGs) for soil were established as acceptable levels so that SWMU closure could be recommended and to assist in directing the investigative efforts toward those SWMUs where the target analytes were of greatest concern (Appendix A). These PCGs were used as action levels throughout this investigation and are used for comparison with the detected analytes in this report.

2.0 Site History

SWMU B17b is in the HWAD's central magazine area, on the northwest side of the 101 Production Area (Figure 1-1). SWMU B17b is an inactive unlined catchment pit located 700 feet southeast of Building 101-20 (Figure 1-2). The catchment pit measures 60 feet by 21 feet and is up to six feet deep; however, the pit has been partially eroded and is partially filled with windblown sand, and tamarisk bushes are growing on the floor of the pit.

The USACE, HWAD, and the NDEP agreed to define the boundaries of each SWMU using annotated monuments and survey pins. As part of E&E's 1997 field investigations,

a survey monument was constructed and surveyed at SWMU B17b. A brass survey pin on the monument designates the monument number HWAAP-88-1996 and the SWMU number B17b. Three corner pins were set and surveyed to define the SWMU boundary, with the monument as the southwest corner. The location of these corner markers and the SWMU boundaries are shown on Figure 1-2. Survey data is presented in Appendix B.

3.0 Site Conditions

Soils encountered during E&E's investigation of SWMU B17b were composed of mostly fine to medium sands. In 1997 first and second quarter ground water monitoring, the depth to ground water was measured at approximately 100 feet bgs at wells IRPMW34 and IRPMW35. These wells are approximately 1,800 feet cross-gradient to the south of SWMU B17b.

Based on the past uses of the pit and on observations made during the previous site inspections, the target analytes at this SWMU were determined to be explosives and metals.

4.0 INVESTIGATIONS

Site inspections of SWMU B17b were conducted by the USAEHA (1988), Jacobs Engineering (1988), and RAI (1992). No investigation activities were conducted during these inspections, and no samples were collected from the SWMU. Sampling activities proposed by E&E in 1994 for the remedial investigation at SWMU B17b included collecting and analyzing both surface and subsurface soil samples. Three surface soil samples and one near-surface soil sample were collected from sample locations SS01, SS02, and HA01 at SWMU B17b (see Figure 3-1). Sample locations SS01 and SS02 were located on the west and east sides of the catchment pit to characterize the potential for contaminated soils outside of the pit. Sample HA01 was located at the lowest elevation in the pit to assess the potential impact from the explosives wastewater that would tend to accumulate in this area. The subsurface investigation at SWMU B17b consisted of one CPT sounding with an adjacent sample boring drilled on the downgradient side (northwest) of the catchment pit at location CPS01, shown on Figure 3-1.

The SWMU inspections conducted in 1988 and 1992 established the assumed conclusion that red stained soil was evidence of TNT contamination. In 1994 some areas where the field tests indicated a high, but shippable levels of contamination, the laboratory test results did not agree with the field test results. This raised the question that the red stained soil may not be TNT contaminated soil. The Corps of Engineers took samples of the stained soil in January 1999 from several sites in the 101 area including SWMU B-17b to test the theory of the red soil being TNT contaminated soil. Based on this sampling and analysis it was demonstrated that the presence of red stained soil does not

always indicate the presence of TNT contamination. Nor does the absence of red stained soil always indicate the lack of TNT contamination.

5.0 Investigation Results

Arsenic (0.7 mg/kg to 5.9 mg/kg), barium (39 mg/kg to 86 mg/kg), total chromium (2.2 mg/kg to 2.9 mg/kg), and lead (1.4 mg/kg to 12 mg/kg) were detected in the surface soil sample collected at location SS02 and in the near-surface soil sample collected at location HA01. Arsenic (2.4 mg/kg to 3.7 mg/kg), barium (68 mg/kg to 130 mg/kg), cadmium (2.6 mg/kg to 8.2 mg/kg), total chromium (1.9 mg/kg to 7.9 mg/kg), and lead (1.4 mg/kg to 1.6 mg/kg) were detected in the subsurface soil samples at location CPS01. No other metals were detected in the subsurface samples. All of the metals detected in the surface and near-surface soil samples collected at SWMU B17b were below their respective PCGs. All of these detected metals concentrations are also below the maximum expected background levels observed in the Walker Valley soils.

All of the metals detected in the two subsurface soil samples collected at CPS01 were reported at concentrations that did not exceed their respective PCGs. With the exception of cadmium, all of these metal concentrations were also below the maximum expected background levels observed in the Walker Valley soils. Cadmium was reported at concentrations of 2.6 mg/kg and at 8.2 mg/kg, exceeding the maximum background level for cadmium of 1.08 mg/kg.

From the laboratory analyses, two explosive compounds, DNB and TNB, were detected above their PCG in the surface sample collected at location SS02. The DNB concentration of 150 mg/kg exceeded the PCG of 8 mg/kg, and the TNB concentration of 60 mg/kg exceeded the PCG of 4 mg/kg. Results of the laboratory analysis are shown in Appendix C. The evidence showed that there was explosives contamination in the area just outside of the pit but no contamination within the pit area.

In March of 1999 The Corps of Engineers took soil samples from the SWMU B-17b pit to confirm that area of the SWMU. The sample locations from the March 1999 sampling event are shown on figure 4, laboratory results are presented in appendix D.

6.0 Remediation

The explosives contaminated soil from SWMU B-17b scrape area was treated by windrow composting. Composting is a natural process in which microorganisms biologically degrade organic material. For the destruction of the explosives contamination temperatures in the compost must reach between 120° F — 160° F and the system must remain in aerobic conditions. The windrow system of composting was selected as the most efficient and economical to be used at the site. Twenty-four (24) cubic yards of contaminated soil was removed from B-17b and placed in compost windrows. Confirmation samples, from the excavated area and finished compost, were taken in accordance with the project work plan.

7.0 Remediation Results

Contaminated soil from B-17b was placed into two (2) different windrows at remediation pad 1(windrows 3B and 5C). After the treatment process the windrows were sampled for explosives and the test results are shown in appendix D; along with the windrow temperature graphs. The location of the conformation samples taken in the B-17b excavation area are shown in figure 5 with the analytical results of these tests also shown in appendix D. One section of the scrape area showed TNT levels at 410 ppm which is in excess of the excavation goals. This area was further excavated and resampled. A total of 24 cubic yards of contaminated soil was removed from B-17b and treated.

8.0 Public Involvement:

It is the U.S. Department of Defense and Army policy to involve the local community throughout the investigation process at an installation. To initiate this involvement, HWAD has established and maintains a repository library at the local public library. This repository includes final copies of all past studies and other documents regarding environmental issues at HWAD. As future environmental documents are made available to HWAD the repository shall be updated.

HWAD has solicited community participation in establishment of a restoration and advisory board (RAB). To date there has been insufficient response and HWAD has not formed a RAB. HWAD has held open houses to inform the public of on going environmental issues. HWAD shall continue to solicit community involvement, and will establish a RAB should sufficient community interest be obtained.

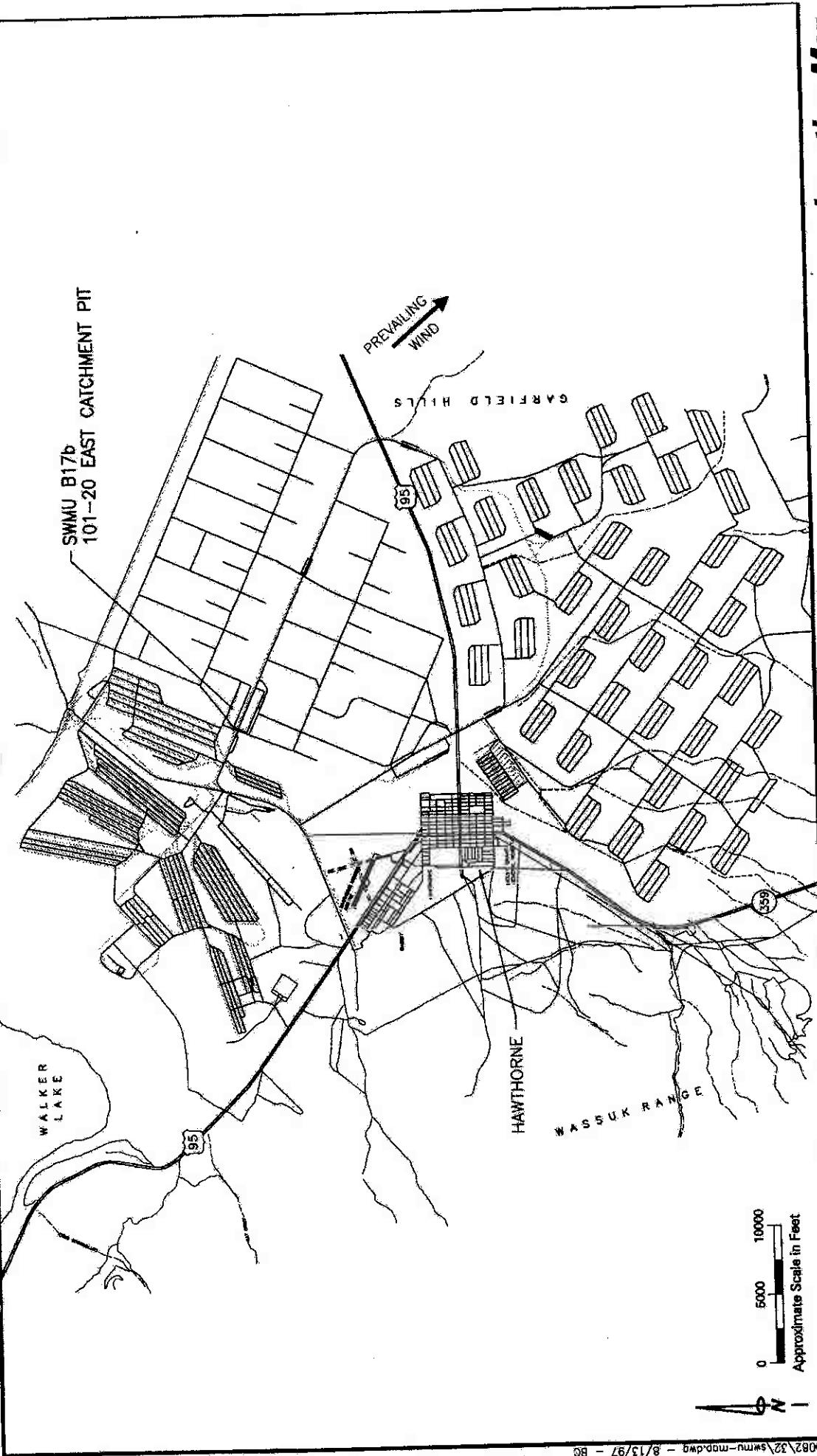
9.0 Conclusions

The contaminated soil has been removed from SWMU B-17b and has been treated in the composting windrows to levels below clean up goals. SWMU B-17b should be closed with the restrictions that no structure be constructed on the SWMU, that the site remain only for industrial use and documented on the depot site master plan.

10.0 REFERENCES

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- WaterWork. 1990. Hawthorne Army Ammunition Plant, Area 101 Surface Impoundments, Field and Lab Data and Analysis, Attachment 1-8.



Location Map
SWMU B17b
101-20 East Catchment Pit

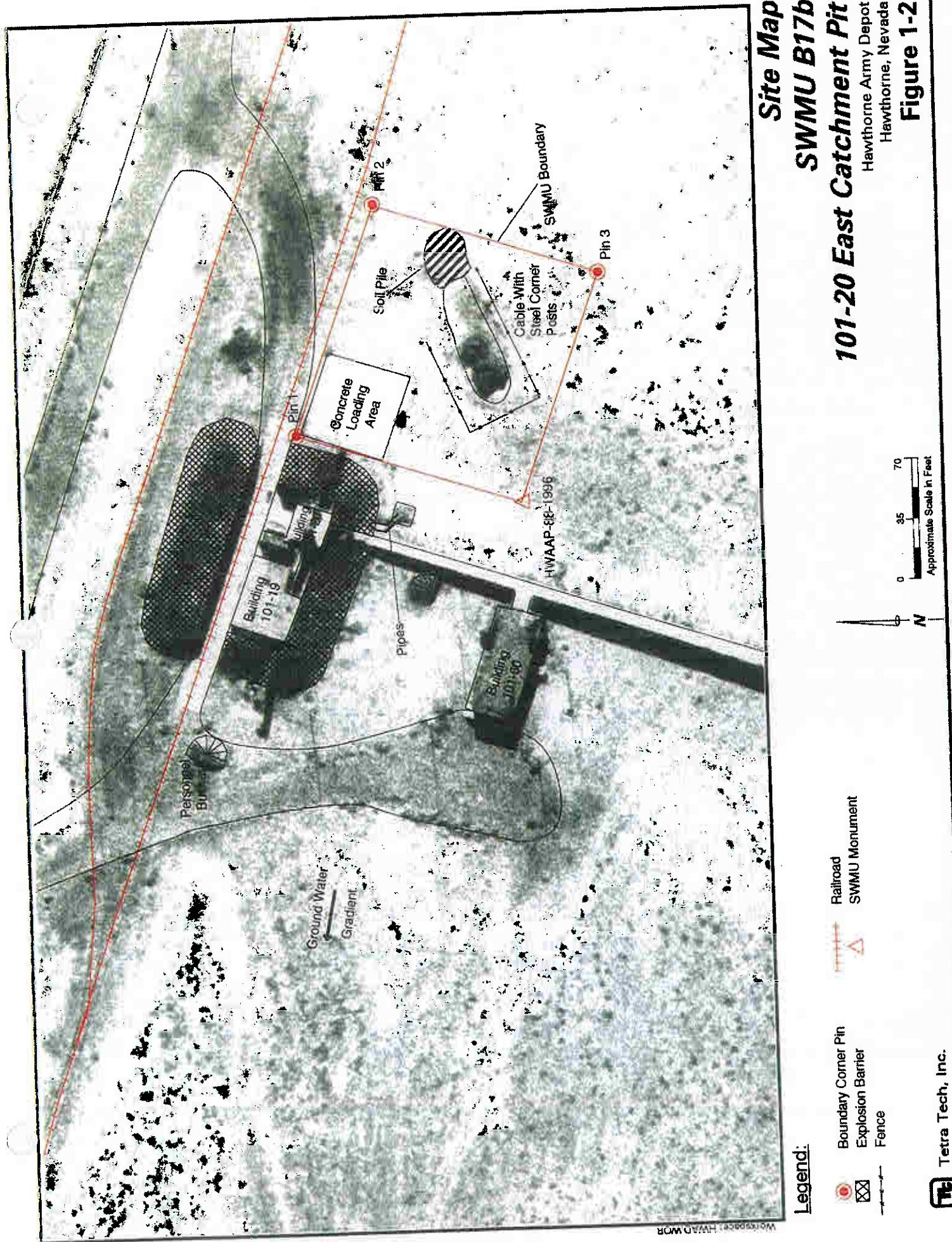
Hawthorne Army Depot
Hawthorne, Nevada

Figure 1-1

**Site Map
SWMU B17b
101-20 East Catchment Pit**

Hawthorne Army Depot
Hawthorne, Nevada

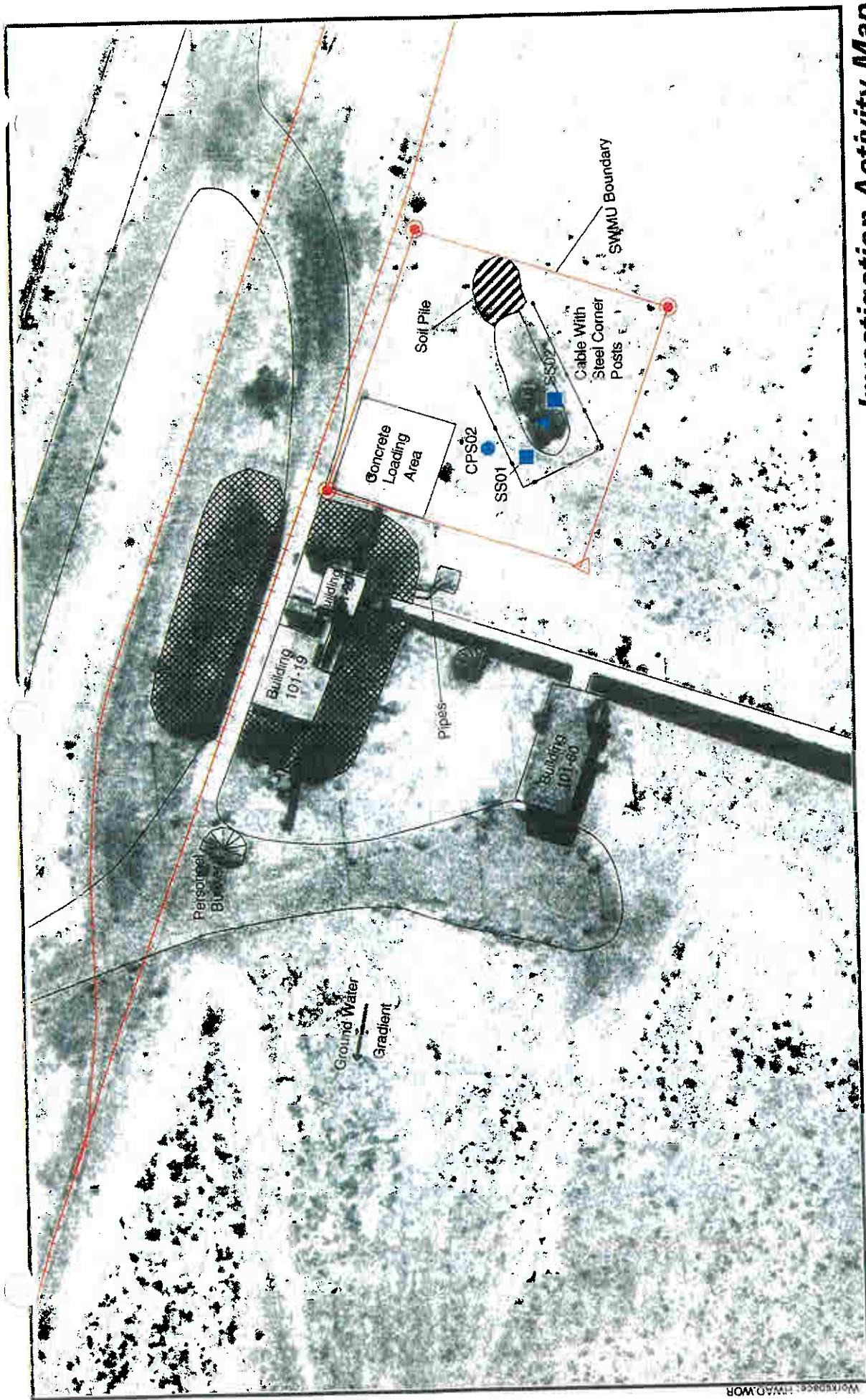
Figure 1-2

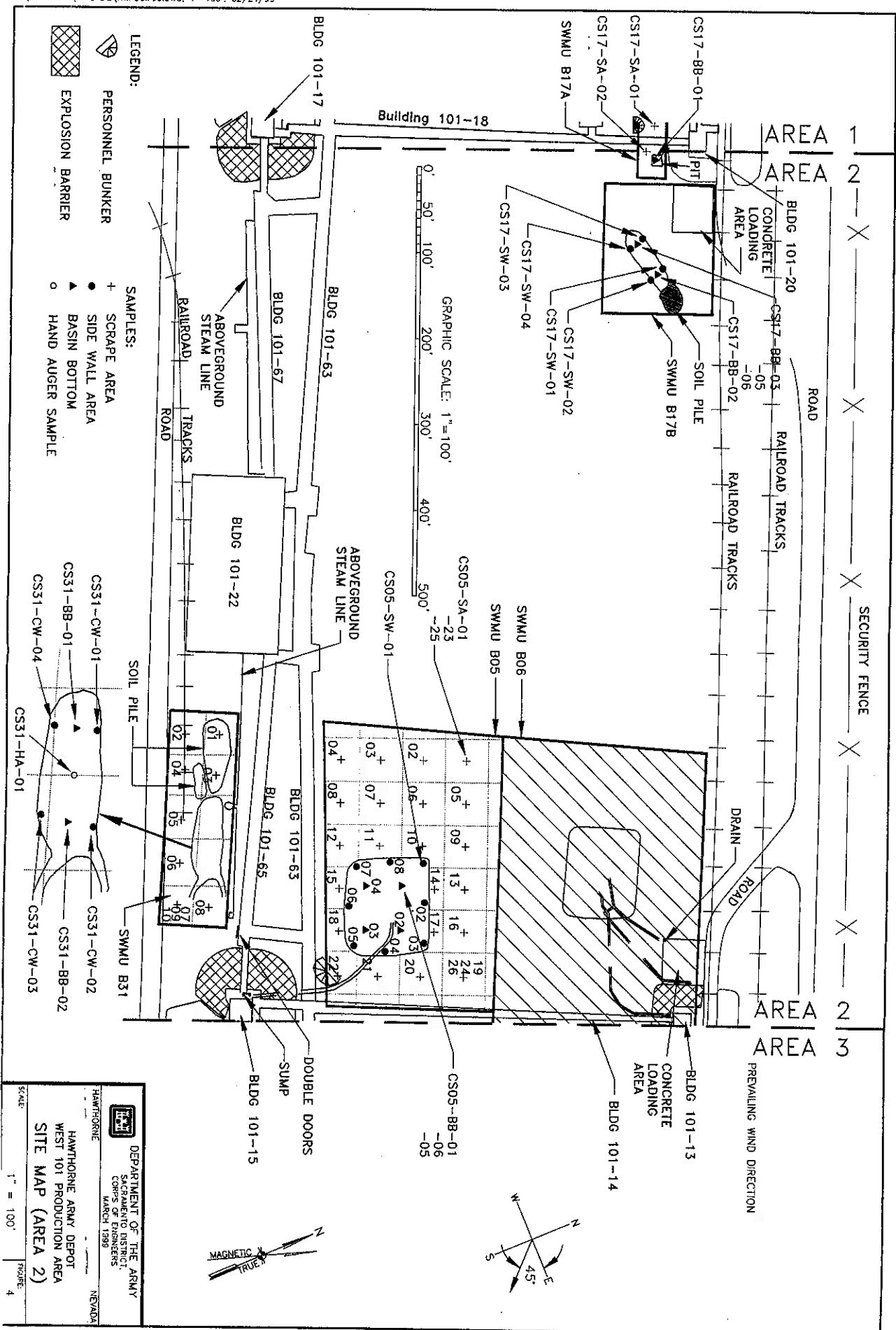


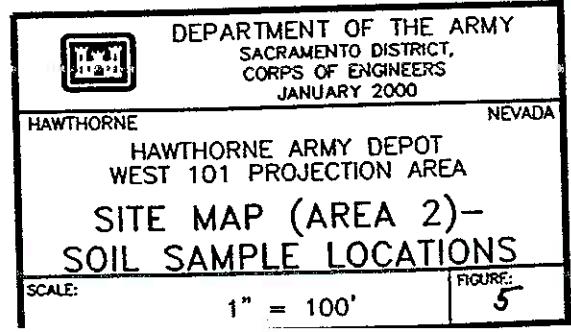
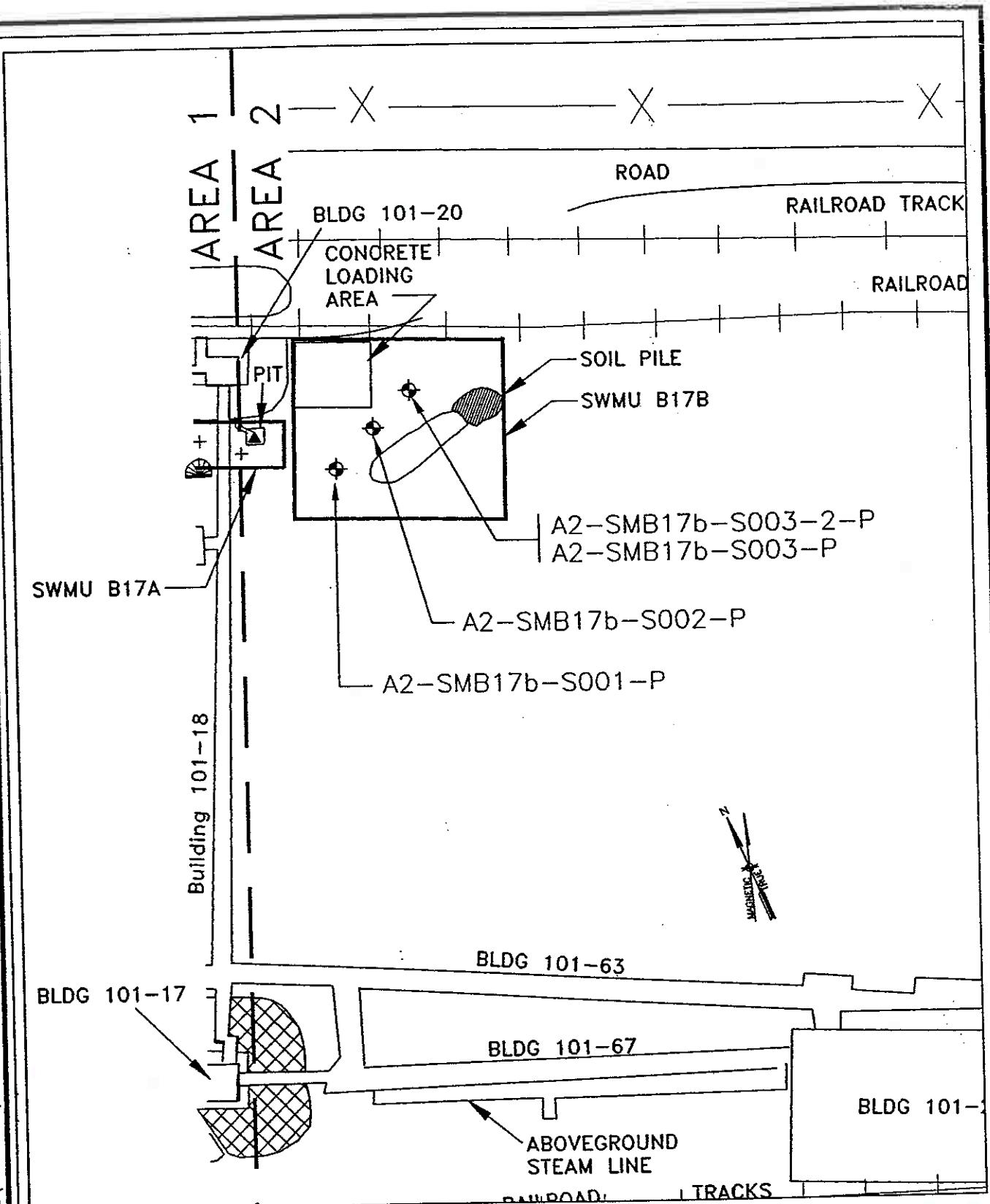
**Investigation Activity Map
SWMU B17b
101-20 East Catchment Pit**

Hawthorne Army Depot
Hawthorne, Nevada

Figure 3-1







Appendix A

Proposed Closure Goals
Hawthorne Army Depot
Hawthorne, Nevada

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for SoH (mg/kg)	HWAD Proposed Closure Goal Source
Nitrate	Anion	NC	128,000	Calculated Subpart S ^a
2-Amino-dinitrotoluene	Explosive	NC	-	NA ^b
4-Amino-dinitrotoluene	Explosive	NC	-	NA
1,3-Dinitrobenzene	Explosive	NC	8	Calculated Subpart S
2,4-Dinitrotoluene	Explosive	NC	160	Calculated Subpart S
2,6-Dinitrotoluene	Explosive	NC	80	Calculated Subpart S
HMX	Explosive	NC	4,000	Calculated Subpart S
Nitrobenzene	Explosive	NC	40	Calculated Subpart S
Nitrotoluene (2-, 3-, 4-)	Explosive	NC	800	Calculated Subpart S
ROX	Explosive	NC	64	Calculated Subpart S
Tetryl	Explosive	NC	800	Calculated Subpart S
1,3,5-Trinitrobenzene	Explosive	NC	4	Calculated Subpart S
2,4,6-Trinitrotoluene	Explosive	C	233	Calculated Subpart S
Aluminum	Metal	NC	80,000	Calculated Subpart S
Arsenic (cancer endpoint)	Metal	C & NC	30	Background ^c
Barium and compounds	Metal	NC	5,600	Calculated Subpart S
Beryllium and compounds	Metal	C	1	Background
Cadmium and compounds	Metal	NC	40	Calculated Subpart S
Chromium III and compounds	Metal	NC	80,000	Calculated Subpart S
Lead	Metal	NC	1000	PRG ^d
Mercury and compounds (inorganic)	Metal	NC	24	Calculated Subpart S
Selenium	Metal	NC	400	Calculated Subpart S
Silver and compounds	Metal	NC	400	Calculated Subpart S
Acenaphthene	PAH	NC	4,600	Calculated Subpart S
Benzo[a]anthracene	PAH	C	0.96	Calculated Subpart S
Benzo[a]pyrene	PAH	C	0.10	Detection Limit ^e
Benzo[b]fluoranthene	PAH	C	0.96	Calculated Subpart S
Benzo[k]fluoranthene	PAH	C	10	Calculated Subpart S
Chrysene	PAH	C	96	Calculated Subpart S
Dibenz[ah]anthracene	PAH	C	0.96	Calculated Subpart S
Fluoranthene	PAH	NC	3,200	Calculated Subpart S
Fluorene	PAH	NC	3,200	Calculated Subpart S
Indeno[1,2,3-cd]pyrene	PAH	C	-	NA
Naphthalene	PAH	NC	3,200	Calculated Subpart S
Pyrene	PAH	NC	2,400	Calculated Subpart S
Total Petroleum Hydrocarbons as Diesel (TPH-d)	PAH	C	100	NDEP Level Clean-up ^f
Polychlorinated biphenyls (PCBs)	PCBs	C	25	TSCA ^g
Bis(2-ethylhexyl)phthalate (DEHP)	SVOC	C	1,600	Calculated Subpart S
Bromoform (tribromomethane)	SVOC	C	89	Calculated Subpart S

Proposed Closure Goals
Hawthorne Army Depot
Hawthorne, Nevada

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for Soil (mg/kg)	HWAD Proposed Closure Goal Source
Butyl benzyl phthalate	SVOC	NC	16,000	Calculated Subpart S
Dibromochloromethane	SVOC	C	83	Calculated Subpart S
Diethyl-phthalate	SVOC	NC	8,000	Calculated Subpart S
Diethyl phthalate	SVOC	NC	64,000	Calculated Subpart S
Phenanthrene	SVOC	-	-	NA
Phenol	SVOC	NC	43,000	Calculated Subpart S
Acetone	VOC	NC	800	Calculated Subpart S
Anthracene	VOC	NC	24,000	Calculated Subpart S
Benzene	VOC	C	24	Calculated Subpart S
Bis(2-chloroisopropyl)ether	VOC	C	3,200	Calculated Subpart S
Bromomethane	VOC	NC	112	Calculated Subpart S
Carbon tetrachloride	VOC	C	5	Calculated Subpart S
Chlorobenzene	VOC	NC	1,600	Calculated Subpart S
Chloroform	VOC	C	115	Calculated Subpart S
Chloromethane	VOC	C	538	Calculated Subpart S
Dibromomethane	VOC	C	0.008	Calculated Subpart S
1,2-Dichlorobenzene	VOC	NC	7,200	Calculated Subpart S
1,4-Dichlorobenzene	VOC	C	18,300	Calculated Subpart S
Dichlorodifluoromethane	VOC	C	16,000	Calculated Subpart S
Ethylbenzene	VOC	NC	8,000	Calculated Subpart S
Methylene bromide	VOC	NC	800	Calculated Subpart S
Methylene chloride	VOC	C	4,800	Calculated Subpart S
2-Methylnaphthalene	VOC	-	-	NA
1,1,2,2-Tetrachloroethane	VOC	C	35	Calculated Subpart S
Tetrachloroethylene (PCE)	VOC	C & NC	800	Calculated Subpart S
Toluene	VOC	NC	16,000	Calculated Subpart S
1,1,1-Trichloroethane	VOC	NC	7,200	Calculated Subpart S
Trichloroethylene (TCE)	VOC	C & NC	480	Calculated Subpart S
Trichlorofluoromethane	VOC	NC	24,000	Calculated Subpart S
1,2,3-Trichloropropane	VOC	C	450	Calculated Subpart S
Vinyl chloride	VOC	C	0.37	Calculated Subpart S
Xylene Total (m-, o-, p-)	VOC	NC	160,000	Calculated Subpart S
2,3,7,8-TCDD	Dioxin	C	0.000005	Calculated Subpart S

^a RCRA 55 FR 30870

^b Not available

^c Highest background concentration detected in 50 background soil samples

^d Smucker, Stanford J. USEPA Region IX, Preliminary Remedial Goals, Second Half, Sep. 1995

^e Method detection limit for Volatile Organic Compounds by EPA Method 8260 or

^f Semi-Volatile Organic Compounds analyzed by EPA Method 8270

^g Nevada Division of Environmental Protection

^h Cleanup level for PCB spills in accordance with Toxic Substance and Control Act Spill Policy Guidelines 40 CFR 761

SAP (9/98, Final) - West 101 Production Area (HWAD)

Proposed Excavation Goal (PEG's) by Definitive and Screening * Analysis
Maximum Concentration of Contaminants
In Soil to Be Left in Place at Depth Below the Surface

Contaminant	Concentration (mg/kg)
2,4,6,-trinitrotoluene (TNT)	800*
2,4-dinitrotoluene (2,4-DNT)	80
2,6-dinitrotoluene (2,6-DNT)	80
1,3,5-trinitrobenzene (1,3,5-TNB)	150
1,3,-dinitrobenzne (1,3-DNB)	NE
2-amino-4,6dinitrotoluene (2-Am-DNT)	NE
4-amino-2,6-dinitrotoluene (4-Am-DNT)	NE
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	4000
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	300
Picric acid	7.0
Pentachlorophenol	NE
Nitroaromatics/Nitroamines	<30

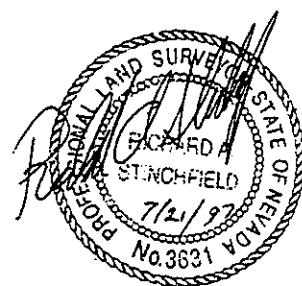
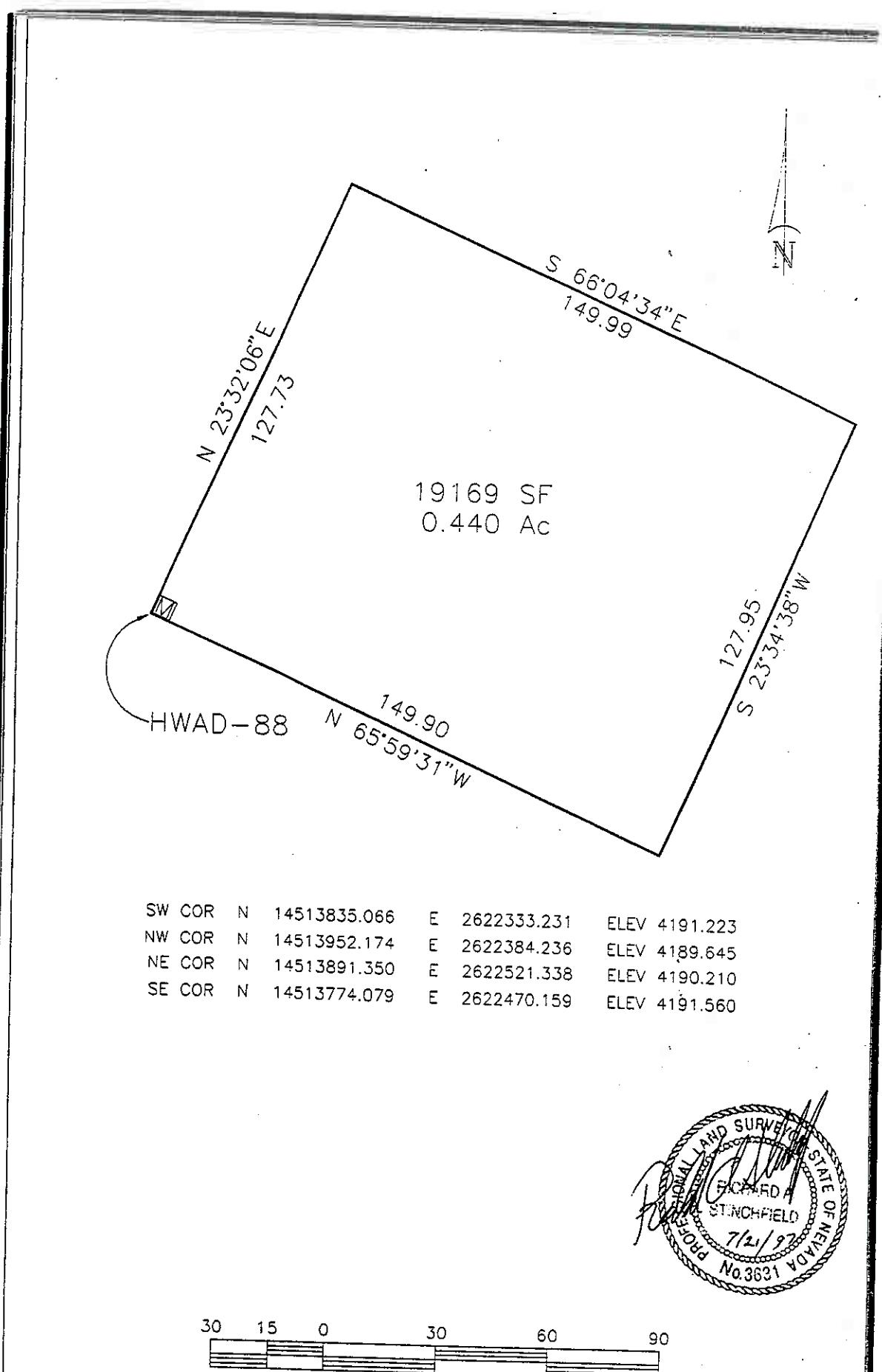
SAP (9/98, Final) - West 101 Production Area (HWAD)

Clean-up Goals by Screening* and Definitive Analysis

Contaminant	Concentration (mg/kg)
2,4,6,-trinitrotoluene (TNT)	40*
2,4-dinitrotoluene (2,4-DNT)	2.6
2,6-dinitrotoluene (2,6-DNT)	2.6
1,3,5-trinitrobenzene (1,3,5-TNB)	4
1,3,-dinitrobenzne (1,3-DNB)	8
2-amino-4,6dinitrotoluene (2-Am-DNT)	NE
4-amino-2,6-dinitrotoluene (4-Am-DNT)	NE
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	100
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	64
Picric acid	7
Pentachlorophenol	None

NE - not established

Appendix B



SWMU B17b Survey Data

Hawthorne Army Depot

Hawthorne, Nevada

SWMU	Point ID	Northing (feet)	Easting (feet)	Elevation
B17b	CPS02	1390519.16	498000.43	NE
B17b	HA01	1390491.16	498012.33	NE
B17b	SS02	1390483.16	498023.83	NE
B17b	SS01	1390501.16	497994.03	NE
B17b	Pin 3	1390421.32	498069.88	4191.560
B17b	Pin 2	1390538.59	498121.06	4190.210
B17b	Pin 1	1390599.42	497983.96	4189.645
B17b	HWAAP-88-1996	1390482.31	497932.95	4191.223

Notes:

NE = Not established

Coordinate data based on electronic map file using the NAD 1927 datum.

Elevation data based on surveyors map using NGVD 1929 datum.

Appendix C

Nitrogen
Method 353.2 (ASC)

Sample ID	Location ID	Sample Date	Depth (feet)	Lab	Nitrogen Nitrate mg/kg
B17B-HA1-1-005	HA01	5/12/94	5	ASC	1.8
B17B-SS1-2-000	SS02	5/12/94	0	ASC	47
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	<1
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	2.2
<hr/>					
Analyses					4
Detections					3
Minimum Concentration					1.8
Maximum Concentration					47
HWAD - PCG					128000
HWAD - PCG Hits					0

Metals
Method 6010A (ASC)

Sample ID	Location ID	Sample Date	Lab Depth (feet)	Boron	Beryllium	Cadmium	Chromium Total	Silver	Arsenic	Lead	Selenium
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B17B-HA1-1-005		HA01	5/12/94	5	ASC	39	<0.52	2.2	<1	NA	NA
B17B-SS1-2-000		SS02	5/12/94	0	ASC	86	<0.51	2.9	<1	5.9	12
B17B-CPS1-1-010		CPS01	5/31/94	10	ASC	68	<0.5	8.2	7.9	<1	3.7
B17B-CPS1-1-017		CPS01	5/31/94	17	ASC	130	<0.52	2.6	1.9	<1	2.4
											<0.52

Analyses	4	4	4	4	4	4	3	3	3	3
Detections	4	0	2	4	0	0	3	3	3	0
Minimum Concentration	39	0	2.6	1.9	0	0	2.4	1.4	1.4	0
Maximum Concentration	130	0	8.2	7.9	0	5.9	12	12	12	0
HWAD - PCG	2000	1	20	20	100	100	100	100	100	20
HWAD - PCG Hits	0	0	0	0	0	0	0	0	0	0

Note:

NA = Not analyzed

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Arsenic
Method 7060 (ASC)

Sample ID	Location ID	Sample Date	Depth (feet)	Lab	Arsenic
mg/kg					
B17B-HA1-1-005	HA01	5/12/94	5	ASC	0.7
B17B-SS1-2-000	SS02	5/12/94	0	ASC	5.9
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	3.7
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	2.4

Analyses	4
Detections	4
Minimum Concentration	0.7
Maximum Concentration	5.9
HWAD - PCG	100
HWAD - PCG Hits	0

Lead
Method 7421 (ASC)

Sample ID	Location ID	Sample Date	Depth (feet)	Lab	Lead
mg/kg					
B17B-HA1-1-005	HA01	5/12/94	5	ASC	1.4
B17B-SS1-2-000	SS02	5/12/94	0	ASC	12
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	1.6
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	1.4
<hr/>					
Analyses					4
Detections					4
Minimum Concentration					1.4
Maximum Concentration					12
HWAD - PCG					100
HWAD - PCG Hits					0

Mercury
Method 7471 (ASC)

Sample ID	Location ID	Sample Date	Depth (feet)	Lab	Mercury
mg/kg					
B17B-HA1-1-005	HA01	5/12/94	5	ASC	<0.1
B17B-SS1-2-000	SS02	5/12/94	0	ASC	<0.1
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	<0.1
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	<0.1
<hr/>					
Analyses					4
Detections					0
Minimum Concentration					0
Maximum Concentration					0
<hr/>					
HWAD - PCG					24
HWAD - PCG Hits					0

Note:

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Selenium
Method 7740 (ASC)

Sample ID	Location ID	Sample Date	Depth (feet)	Lab	Selenium	
						mg/kg
B17B-HA1-1-005	HA01	5/12/94	5	ASC	<0.52	
B17B-SS1-2-000	SS02	5/12/94	0	ASC	<1	
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	<0.5	
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	<0.52	

Analyses	4
Detections	0
Minimum Concentration	0
Maximum Concentration	0
HWAD - PCG	20
HWAD - PCG Hits	0

Note:

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Explosives
Method 8330 (ASC)

Note

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect.

value for that analyte.

Explosives
Method 8330 (ASC)

Sample ID	Location ID	Sample Date	Lab	Depth (feet)		RDX		Tetryl	
				M-Dinitrobenzene	Nitrobenzene	mg/kg	mg/kg	mg/kg	mg/kg
B17B-HA1-1-005	HA01	5/12/94	5	ASC	<1	<1	1.8	1.3	<1
B17B-SS1-2-000	SS02	5/12/94	0	ASC	150	<1	3.4	60	<1
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	<1	<1	<1	<1	<1
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	<1	<1	<1	<1	<1
Analyses				4	4	4	4	4	4
Detections				1	0	2	2	2	0
Minimum Concentration				150	0	1.8	1.3	0	0
Maximum Concentration				150	0	3.4	60	0	0
HWAD - PCG				8	40	64	4	800	
HWAD - PCG Hits				1	0	0	1	0	0

Note:

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Picric Acid
Method 8330M (ASC)

Sample ID	Location ID	Sample Date	Depth (feet)	Lab	Picric Acid
mg/kg					
B17B-HA1-1-005	HA01	5/12/94	5	ASC	<0.25
B17B-SS1-2-000	SS02	5/12/94	0	ASC	1.1
B17B-CPS1-1-010	CPS01	5/31/94	10	ASC	0.94
B17B-CPS1-1-017	CPS01	5/31/94	17	ASC	<0.25
<hr/>					
Analyses					4
Detections					2
Minimum Concentration					0.94
Maximum Concentration					1.1
HWAD - PCG					NE
HWAD - PCG Hits					NE

Note:

NE = Not established

Appendix D

SWMU B-17b

**Confirmation
Samples**

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

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Submitted to:

Tetra Tech, Inc. (San Francisco)

Attention: Roy Roenbeck

180 Howard St. Ste. 250

San Francisco CA 94105

Tel: (415)974-1221 Fax: (415)974-5914

APCL Analytical Report

Service ID #: 801-992443

Received: 03/12/99

Collected by: GM/FH

Extracted: 03/15/99

Collected on: 03/09/99

Tested: 03/16-17/99

Reported: 03/24/99

Sample Description: Soil from Hawthorne,NV

Project Description: HAWD-101

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS17-BB-01 99-02443-1	CS09-BB-01 99-02443-2	CS17-BB-02 99-02443-3	CS17-BB-03 99-02443-4
MOISTURE	ASTM-D2216	%Moisture	0.5	7.0	1.4	2.8	4.1
NITROAROMATICS AND NITROAMINES ^(a)							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.3	<0.20	<0.21	<0.21
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.4	<0.20	<0.21	<0.21
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
HMX	8330	mg/kg	0.25	0.82	0.49	0.36	0.2J
NITROBENZENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
RDX	8330	mg/kg	0.25	1.0	0.87	1.1	1.6
TETRYL	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.7	<0.25	1.3	1.4
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.93	<0.25	2.4	0.43
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS17-BB-05 99-02443-5	CS17-SA-01 99-02443-6	CS09-SA-01 99-02443-7	CS17-SA-02 99-02443-8
MOISTURE	ASTM-D2216	%Moisture	0.5	4.1	2.5	1.1	2.0
NITROAROMATICS AND NITROAMINES ^(a)							
Dilution Factor				1	100	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.21	<21	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.21	<21	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	0.91
HMX	8330	mg/kg	0.25	0.2J	<26	<0.25	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	3.3
RDX	8330	mg/kg	0.25	1.4	<26	<0.25	<0.25
TETRYL	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.3	<26	<0.25	17.7
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.52	1480	<0.25	8.6
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS09-SA-02 99-02443-9	CS17-SW-01 99-02443-10	CS17-SW-02 99-02443-11	CS17-SW-03 99-02443-12
MOISTURE	ASTM-D2216	%Moisture	0.5	1.2	2.3	6.3	2.1
NITROAROMATICS AND NITROAMINES ^(a)							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
HMX	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
RDX	8330	mg/kg	0.25	<0.25	0.57	<0.27	0.55
TETRYL	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	0.59	<0.27	4.8
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	0.80
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS17-SW-04 99-02443-13	CS31-BB-01 99-02443-14	CS31-BB-02 99-02443-15	CS31-SA-01 99-02443-16
MOISTURE	ASTM-D2216	%Moisture	0.5	1.1	1.1	5.6	1.9
NITROAROMATICS AND NITROAMINES ^(a)							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	0.39	<0.25
HMX	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
RDX	8330	mg/kg	0.25	0.39	<0.25	<0.26	<0.25
TETRYL	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	0.83	<0.25	<0.26	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	0.65	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS31-SA-02 99-02443-17	CS31-SA-03 99-02443-18	CS31-SA-04 99-02443-19	CS31-SA-05 99-02443-20
MOISTURE	ASTM-D2216	%Moisture	0.5	0.8	1.7	2.5	1.1

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				A1-SMB16-T1-001-P 99-04966-3	A1-SMB16-T2-001-P 99-04966-4
MOISTURE	ASTM-D2216	%Moisture	0.5	1.4	1.5
NITROAROMATICS AND NITROAMINES					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
HMX	8330	mg/kg	0.25	0.1J	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
RDX	8330	mg/kg	0.25	0.09J	<0.25
TETRYL	8330	mg/kg	0.25	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.49	0.1J
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<0.25
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A2-SMB06-S001-P 99-04966-5	A2-SMB17B-S001-P 99-04966-6
MOISTURE	ASTM-D2216	%Moisture	0.5	1.9	0.8
NITROAROMATICS AND NITROAMINES					
Dilution Factor				10	10
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<2.0	2
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	2J	2J
1,3-DINITROBENZENE	8330	mg/kg	0.25	<2.5	<2.5
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<2.5	<2.5
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<2.5	<2.5
HMX	8330	mg/kg	0.25	19	<2.5
NITROBENZENE	8330	mg/kg	0.25	<2.5	<2.5
3-NITROTOLUENE	8330	mg/kg	0.25	<2.5	<2.5
RDX	8330	mg/kg	0.25	182	1J
TETRYL	8330	mg/kg	0.25	<2.5	<2.5
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	11	22
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	128	41
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<2.5
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<2.5

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A2-SMB17B-S002-P 99-04966-7	A2-SMB17B-S003-P 99-04966-8
MOISTURE	ASTM-D2216	%Moisture	0.5	0.8	1.5

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				A2-SMB17B-S002-P 99-04966-7	A2-SMB17B-S003-P 99-04966-8
NITROAROMATICS AND NITROAMINES					
Dilution Factor				10	100
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<2.0	<20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	2J	<20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<2.5	<25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	2J	<25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<2.5	<25
HMX	8330	mg/kg	0.25	<2.5	<25
NITROBENZENE	8330	mg/kg	0.25	<2.5	<25
3-NITROTOLUENE	8330	mg/kg	0.25	<2.5	<25
RDX	8330	mg/kg	0.25	5.0	<25
TETRYL	8330	mg/kg	0.25	<2.5	<25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	41	40
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	78	410
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<25
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<25

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P3-GS003-P 99-04966-9	A4-SMB09-P3-GS004-P 99-04966-10
MOISTURE					
ASTM-D2216		%Moisture	0.5	0.7	0.8
NITROAROMATICS AND NITROAMINES					
Dilution Factor				5	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.9J	0.61
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.7J	0.69
1,3-DINITROBENZENE	8330	mg/kg	0.25	<1.3	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<1.3	0.1J
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<1.3	<0.25
HMX	8330	mg/kg	0.25	24	10.1
NITROBENZENE	8330	mg/kg	0.25	<1.3	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<1.3	<0.25
RDX	8330	mg/kg	0.25	69	12.6
TETRYL	8330	mg/kg	0.25	<1.3	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.5	0.51
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	5.3	1.5
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<1.3	<0.25
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<1.3	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P3-GF001-P 99-04966-11	A4-SMB09-P3-GS001-P 99-04966-12
MOISTURE	ASTM-D2216	%Moisture	0.5	1	0.7

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Submitted to:

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Attention: Roy Roenbeck

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APCL Analytical Report

Service ID #: 801-995332

Received: 08/14/99

Collected by: D. Gonzales

Extracted: 08/17-23/99

Collected on: 08/11-12/99

Tested: 08/16-25/99

Reported: 08/26/99

Sample Description: Compost, Soil and Water

Project Description: W 101 Bioremediation

Analysis of Water and Soil Samples**I. Analysis of Water Samples**

Component Analyzed	Method	Unit	PQL	Analysis Result ER-081199-08051 99-05332-20
NITROAROMATICS AND NITROAMINES				
Dilution Factor				2.2
4-AMINO-2,6-DINITROTOLUENE	8330	µg/L	10	<22
2-AMINO-4,6-DINITROTOLUENE	8330	µg/L	10	<22
1,3-DINITROBENZENE	8330	µg/L	4	<8.8
2,4-DINITROTOLUENE	8330	µg/L	5.7	<13
2,6-DINITROTOLUENE	8330	µg/L	9.4	<21
HMX	8330	µg/L	13	<29
NITROBENZENE	8330	µg/L	6.4	<14
3-NITROTOLUENE	8330	µg/L	7.9	<17
RDX	8330	µg/L	14	<31
TETRYL	8330	µg/L	4	<8.8
1,3,5-TRINITROBENZENE	8330	µg/L	7.3	<16
2,4,6-TRINITROTOLUENE	8330	µg/L	6.9	<15
2-NITROTOLUENE (a)	8330	µg/L	8.5	<19
4-NITROTOLUENE (a)	8330	µg/L	8.5	<19

II . Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result A2-SM17B-S003-2-P 99-05332-1	A3-WR002C-C001-CC002-P 99-05332-2
MOISTURE	ASTM-D2216	%Moisture	0.5	1.7	16.9
NITROAROMATICS AND NITROAMINES					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.24
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.24
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.30
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.30
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.30
HMX	8330	mg/kg	0.25	3.0	0.41
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.30
3-NITROTOLUENE	8330	mg/kg	0.25	22.0	0.21
RDX	8330	mg/kg	0.25	<0.25	<0.30
TETRYL	8330	mg/kg	0.25	13.4	<0.30
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	5.50	<0.30
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.30
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<0.30
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<0.30

SWMU B-17b

**Windrow Compost
Samples**

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				101@44-B22B-GF003-05-P 99-04595-5	A2-SMB06-S018-P 99-04595-6
NITROAROMATICS AND NITROAMINES					
Dilution Factor				1	500
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<100
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<100
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<130
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<130
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	350
HMX	8330	mg/kg	0.25	<0.25	<130
NITROBENZENE	8330	mg/kg	0.25	<0.25	<130
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	2,500
RDX	8330	mg/kg	0.25	<0.25	<130
TETRYL	8330	mg/kg	0.25	<0.25	89J
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	2,000
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<130
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<130
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<130

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A2-SMB06-TUNNEL-001-P 99-04595-7	A3-WR003B-C001-CC002-P 99-04595-8
MOISTURE, PERCENT IN SOIL ASTM-D2216 %Moisture					
MOISTURE, PERCENT IN SOIL				0.5	1.4
NITROAROMATICS AND NITROAMINES					
Dilution Factor				500	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<100	<0.24
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<100	<0.24
1,3-DINITROBENZENE	8330	mg/kg	0.25	<130	<0.30
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<130	<0.30
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<130	<0.30
HMX	8330	mg/kg	0.25	270	<0.30
NITROBENZENE	8330	mg/kg	0.25	<130	<0.30
3-NITROTOLUENE	8330	mg/kg	0.25	<130	0.89
RDX	8330	mg/kg	0.25	2,200	<0.30
TETRYL	8330	mg/kg	0.25	<130	<0.30
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	460	<0.30
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	5,120	2.0
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<130	<0.30
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<130	<0.30

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR003B-C002-CC002-P 99-04595-9	A3-WR003B-C003-CC002-P 99-04595-10
MOISTURE, PERCENT IN SOIL ASTM-D2216 %Moisture					
MOISTURE, PERCENT IN SOIL				0.5	23.6
					15.2

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR003B-C002-CC002-P 99-04595-9	A3-WR003B-C003-CC002-P 99-04595-10

NITROAROMATICS AND NITROAMINES

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.26	<0.24
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.26	<0.24
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.33	<0.29
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.33	<0.29
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.33	<0.29
HMX	8330	mg/kg	0.25	0.91	<0.29
NITROBENZENE	8330	mg/kg	0.25	<0.33	<0.29
3-NITROTOLUENE	8330	mg/kg	0.25	<0.33	<0.29
RDX	8330	mg/kg	0.25	23.4	<0.29
TETRYL	8330	mg/kg	0.25	<0.33	<0.29
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.33	<0.29
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.33	0.30
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.33	<0.29
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.33	<0.29

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR003B-C004-CC002-P 99-04595-11	A3-WR004B-C001-CC002-P 99-04595-12

MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	18.7	20.9
NITROAROMATICS AND NITROAMINES					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.25	<0.25
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.25	<0.25
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.32
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.32
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.32
HMX	8330	mg/kg	0.25	<0.31	<0.32
NITROBENZENE	8330	mg/kg	0.25	<0.31	<0.32
3-NITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.32
RDX	8330	mg/kg	0.25	0.47	<0.32
TETRYL	8330	mg/kg	0.25	<0.31	<0.32
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.32
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.3J	0.32
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.31	<0.32
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.31	0.32

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR004B-C002-CC002-P 99-04595-13	A3-WR004B-C003-CC002-P 99-04595-14
MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	20.9	15.7

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				A2-SMB06-S019-2-P 99-05567-1	A3-WR005-CC001-CC0002-P 99-05567-2
NITROAROMATICS AND NITROAMINES (b)					
Dilution Factor				10	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<2.1	<0.25
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<2.1	0.4
1,3-DINITROBENZENE	8330	mg/kg	0.25	<2.6	<0.31
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<2.6	<0.31
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<2.6	<0.31
HMX	8330	mg/kg	0.25	14	0.2J
NITROBENZENE	8330	mg/kg	0.25	<2.6	<0.31
3-NITROTOLUENE	8330	mg/kg	0.25	<2.6	<0.31
RDX	8330	mg/kg	0.25	104	0.44
TETRYL	8330	mg/kg	0.25	<2.6	<0.31
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	8.5	0.1J
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	31	0.32
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.6	<0.31
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.6	<0.31
Dilution Factor					1
PICRIC ACID	M8330	mg/kg	2.5		<3.1

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR005-CC002-CC0002-P 99-05567-3	A3-WR005-CC003-CC0002-P 99-05567-4
MOISTURE					
	ASTM-D2216	%Moisture	0.5	17.5	21.8
NITROAROMATICS AND NITROAMINES (b)					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.24	<0.26
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.24	<0.26
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.30	<0.32
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.32
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.32
HMX	8330	mg/kg	0.25	0.95	<0.32
NITROBENZENE	8330	mg/kg	0.25	<0.30	<0.32
3-NITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.32
RDX	8330	mg/kg	0.25	14.1	<0.32
TETRYL	8330	mg/kg	0.25	<0.30	<0.32
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.30	<0.32
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.32
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.30	<0.32
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.30	<0.32
Dilution Factor				1	1
PICRIC ACID	M8330	mg/kg	2.5	<3.0	<3.2

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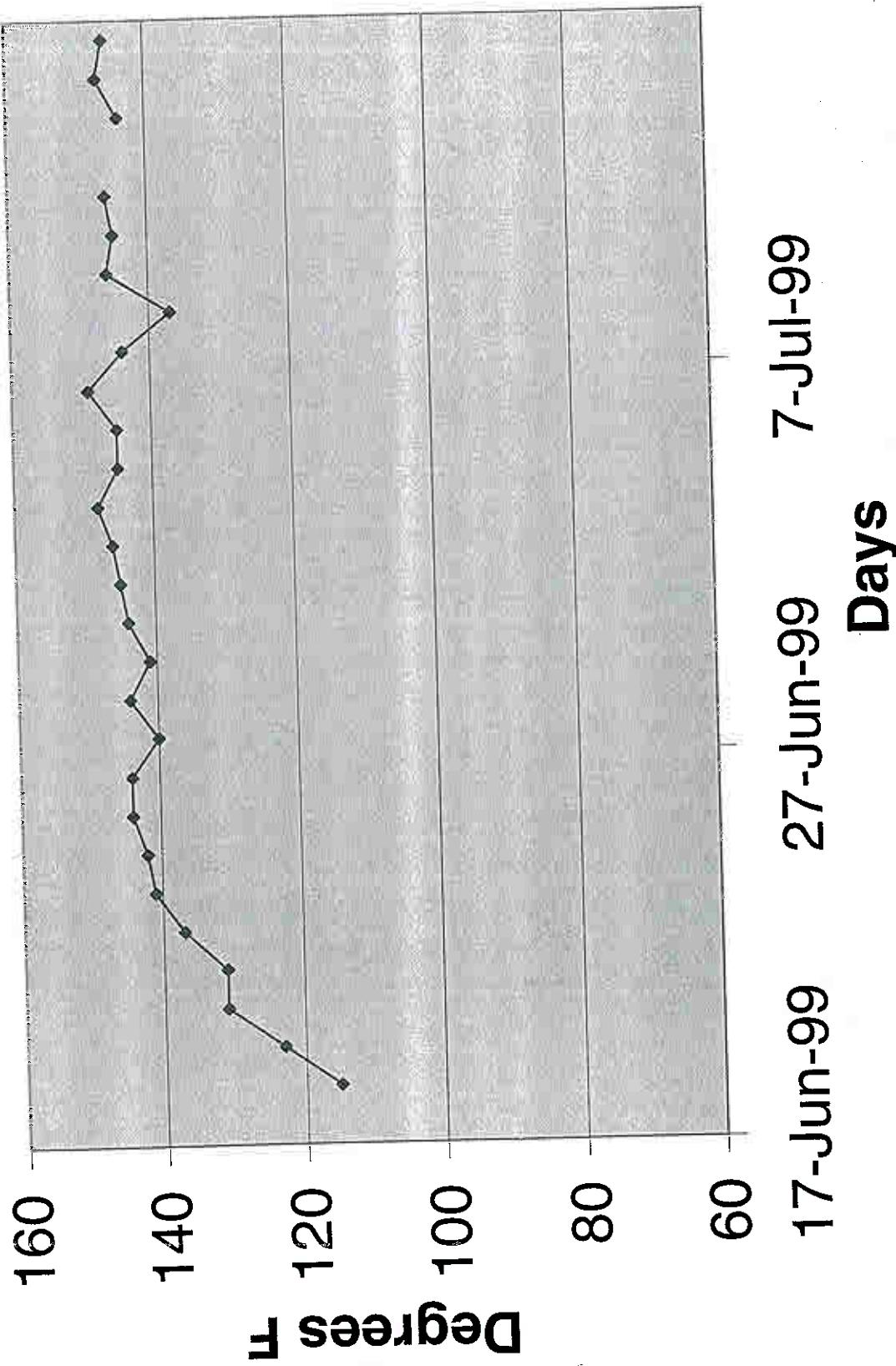
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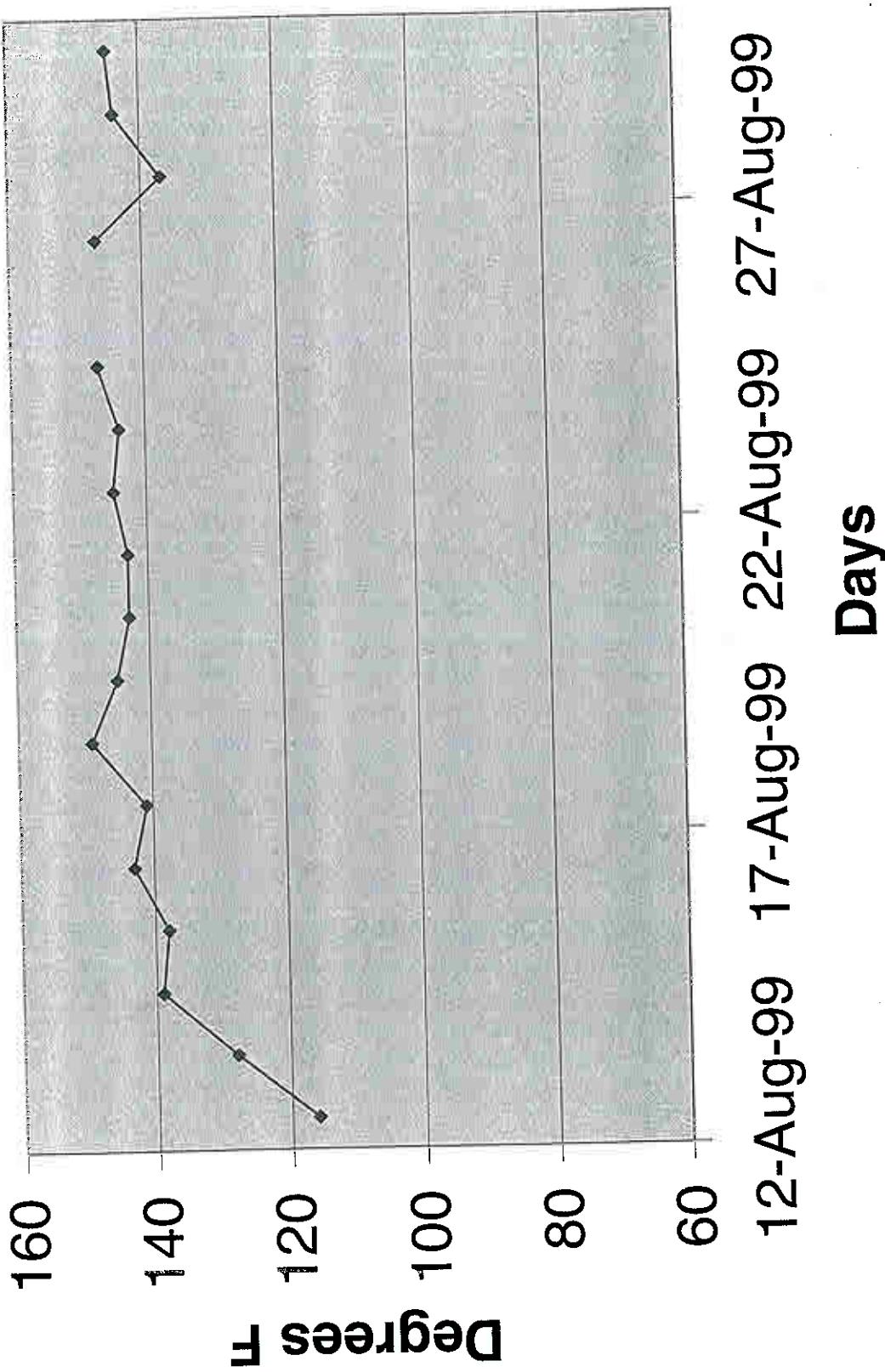
Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR005-CC004-CC0002-P 99-05567-5	A3-WR006-CC001-CC0002-P 99-05567-6
MOISTURE	ASTM-D2216	%Moisture	0.5	21.9	16.0
NITROAROMATICS AND NITROAMINES ^(b)					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.97	<0.24
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.93	<0.24
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.32	<0.30
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.32	<0.30
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.32	<0.30
HMX	8330	mg/kg	0.25	0.2J	<0.30
NITROBENZENE	8330	mg/kg	0.25	<0.32	<0.30
3-NITROTOLUENE	8330	mg/kg	0.25	<0.32	<0.30
RDX	8330	mg/kg	0.25	0.2J	<0.30
TETRYL	8330	mg/kg	0.25	<0.32	<0.30
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.32	<0.30
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	1.6	<0.30
2-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.32	<0.30
4-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.32	<0.30
Dilution Factor				1	1
PICRIC ACID	M8330	mg/kg	2.5	<3.2	<3.0

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR006-CC002-CC0002-P 99-05567-7	A3-WR006-CC003-CC0002-P 99-05567-8
MOISTURE	ASTM-D2216	%Moisture	0.5	17.6	19.5
NITROAROMATICS AND NITROAMINES ^(b)					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.24	<0.25
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.24	<0.25
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.30	<0.31
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.31
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.31
HMX	8330	mg/kg	0.25	0.8J	<0.31
NITROBENZENE	8330	mg/kg	0.25	<0.30	<0.31
3-NITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.31
RDX	8330	mg/kg	0.25	1.9	<0.31
TETRYL	8330	mg/kg	0.25	<0.30	<0.31
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.30	<0.31
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.80	<0.81
2-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.30	<0.31
4-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.30	<0.31
Dilution Factor				1	1
PICRIC ACID	M8330	mg/kg	2.5	<3.0	<3.1

Windrow 3B Temperatures



Windrow 5C Temperatures



Appendix E



B17b, Facing due north towards impoundment with Bldg. 101-20 and railroad car and tracks in background. #R2-N14, 9/28/94



B17b, Facing south towards impoundment. #R2-N18, 9/28/94

September 1994



SWMUB- 17b September 1999